Preliminary Amendment

IN THE CLAIMS

Please mend the claims as follows:

Claim 1 (Currently Amended): A calixarene compound shown by following formula (1):

[Formula-1]

$$Z^{17}O \qquad (X^9)_{q9} O Z^{18} \qquad (X^3)_{q3} \qquad Z^{19}O \qquad (X^{10})_{q_{10}} O Z^{20}$$

$$Z^{16}O \qquad CH \qquad Z^{5}O \qquad CH \qquad CH \qquad CH \qquad (X^{11})_{q_{11}} CH \qquad CH \qquad CZ^{22}$$

$$Z^{14}O \qquad CH \qquad R^2 \qquad R^3 \qquad CH \qquad CH \qquad OZ^{23}$$

$$(X^7)_{q7} \qquad Z^{13}O \qquad CH \qquad R^4 \qquad R^5 \qquad R^3 \qquad CH \qquad CH \qquad OZ^{24}$$

$$Z^{10}O \qquad (X^2)_{q2} \qquad CH \qquad CH \qquad CH \qquad OZ^2 \qquad (X^1)_{q1} \qquad CH \qquad CH \qquad OZ^2 \qquad (X^1)_{q1} \qquad (X^1)_{q1} \qquad (X^1)_{q1} \qquad (X^1)_{q1} \qquad (X^1)_{q1} \qquad (X^1)_{q1} \qquad (X^1)_{q2} \qquad (X^1)_{q1} \qquad (X^1)_{q2} \qquad (X^1)_{q2} \qquad (X^1)_{q2} \qquad (X^1)_{q3} \qquad (X^1)_{q4} \qquad (X^1)$$

wherein R^1 to R^6 individually represent a substituted or unsubstituted alkylene group having 1 to 8 carbon atoms; X^1 to X^{12} individually represent a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted alkenyl group having 2 to 10 carbon atoms, a substituted or unsubstituted alkynyl group having 2 to 10 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 10 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 10 carbon atoms, or a substituted or unsubstituted phenoxy group; Z^1 to Z^{24} individually represent a hydrogen atom, a group having a

polymerizable functional group, a group having an alkali-soluble group, or a substituted alkyl group having an alkyl chain with a 1 to 8 carbon atom content, or two adjacent Zs in combination represent a substituted or unsubstituted alkylene group having 1 to 8 carbon atoms; q^1 to q^{12} individually represent an integer of 0 or 1.

Claim 2 (Original): The calixarene compound according to claim 1, wherein X^1 to X^{12} in the formula (1) are methyl groups.

Claim 3 (Original): The calixarene compound according to claim 1, wherein q^1 to q^{12} in the formula (1) are 0.

Claim 4 (Currently Amended): The calixarene compound according to any one of elaims claim 1 to 3, wherein R¹ to R⁶ are individually an alkylene group having 3, 5, 7, or 8 carbon atoms.

Claim 5 (Currently Amended): The calixarene compound according to any one of elaims claim 1 to 4, wherein all of the Z^1 to Z^{24} groups in the formula (1) are hydrogen atoms.

Claim 6 (Currently Amended): The calixarene compound according to any one of elaims claim 1 to 4, wherein at least one of the Z^1 to Z^{24} groups in the formula (1) is a group other than hydrogen atom.

Claim 7 (Original): The calixarene compound according to claim 6, wherein at least one of the Z^1 to Z^{24} groups in the formula (1) has a polymerizable functional group.

Claim 8 (Original): The calixarene compound according to claim 7, wherein the polymerizable functional group is a polymerizable unsaturated group and/or a cyclic ether group.

Claim 9 (Currently Amended): The calixarene compound according to any one of elaims claim 6 to 8, wherein at least one of the Z^1 to Z^{24} groups in the formula (1) has an alkali-soluble group.

Claim 10 (Original): The calixarene derivative according to claim 9, wherein the alkali-soluble group is at least one group selected from the group consisting of a carboxyl group, amino group, sulfonamide group, sulfonic acid group, and phosphoric acid group.

Claim 11 (Currently Amended): The calixarene derivative according to any one of elaims claim 6 to 10, wherein at least one of the groups among Z^1 to Z^{24} in the formula (1) has both a polymerizable functional group and an alkali-soluble group.

Claim 12 (Currently Amended): At least one intermediate of a calixarene compound selected from the group shown by the following formulas (2), to (8):

[Formula 2]

$$(X^{16})_{q16}$$
 $(X^{16})_{q16}$
 $(X^{17})_{q13}$
 $(X^{15})_{q15}$
 $(X^{15})_{q15}$
 $(X^{16})_{q14}$
 $(X^{16})_{q14}$
 $(X^{16})_{q15}$
 $(X^{16})_{q15}$
 $(X^{16})_{q15}$
 $(X^{16})_{q15}$

wherein R^7 represents a substituted or unsubstituted alkylene group having 1 to 8 carbon atoms; X^{13} to X^{16} individually represent a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted alkenyl group having 2 to 10 carbon atoms, a substituted or unsubstituted alkynyl group having 2 to 10 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 10 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 10 carbon atoms, or a substituted or unsubstituted phenoxy group; and q^{13} to q^{16} individually represent an integer of 0 or 1,

[Formula 3]

$$(X^{21})_{q21}$$
 $(X^{21})_{q21}$
 $(X^{21})_{q22}$
 $(X^{$

wherein R^8 and R^9 individually represent a substituted or unsubstituted alkylene group having 1 to 8 carbon atoms; X^{17} to X^{23} individually represent a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted alkenyl group having 2 to 10 carbon atoms, a substituted or unsubstituted alkynyl group having 2 to 10 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 10 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 10 carbon atoms, or a substituted or unsubstituted phenoxy group; and q^{17} to q^{23} individually represent an integer of 0 or 1,

[Formula 4]

$$(X^{29})_{q29} \xrightarrow{\text{CH}} (X^{27})_{q27} \xrightarrow{\text{CH}} (X^{27})_{q27} \xrightarrow{\text{CH}} (X^{27})_{q28} \xrightarrow{\text{CH}} (X^{27})_{q27} \xrightarrow{\text{CH}} (X^{27})_{q27} \xrightarrow{\text{CH}} (X^{28})_{q28} \xrightarrow{\text{CH}} (X^{27})_{q27} \xrightarrow{\text{CH}} (X^{28})_{q28} \xrightarrow{\text{CH}} (X^{28})_{q28} \xrightarrow{\text{CH}} (X^{27})_{q27} \xrightarrow{\text{CH}} (X^{28})_{q28} \xrightarrow{\text{CH}} (X^{28})_{q28} \xrightarrow{\text{CH}} (X^{27})_{q27} \xrightarrow{\text{CH}} (X^{28})_{q28} \xrightarrow{\text{CH}} (X^{$$

wherein R^{10} to R^{12} individually represent a substituted or unsubstituted alkylene group having 1 to 8 carbon atoms; X^{24} to X^{33} individually represent a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted alkenyl group having 2 to 10 carbon atoms, a substituted or unsubstituted alkynyl group having 2 to 10 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 10 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 10 carbon atoms, or a substituted or unsubstituted phenoxy group; q^{24} to q^{33} individually represent an integer of 0 or 1,

[Formula 5]

$$(X^{40})_{q40} \\ OH \\ HO \\ CH \\ R^{14} \\ CH \\ OH \\ (X^{39})_{q39} \\ OH \\ (X^{38})_{q38} \\ OH \\ (X^{38})_{q38} \\ OH \\ (X^{37})_{q37} \\ OH \\ (X^{37})_{q37} \\ OH \\ (X^{36})_{q36} \\ OH \\ (X^{36})_{q36} \\ OH \\ (X^{37})_{q37} \\ OH \\ (X^{36})_{q36} \\ OH \\ (X^{37})_{q37} \\ OH \\ (X^{37})_{q37} \\ OH \\ (X^{36})_{q36} \\ OH \\ (X^{36})_{q36} \\ OH \\ (X^{37})_{q37} \\ OH \\ (X^{38})_{q38} \\ OH \\ (X^{38})_{q38$$

wherein R^{13} to R^{15} individually represent a substituted or unsubstituted alkylene group having 1 to 8 carbon atoms; X^{34} to X^{42} individually represent a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted alkenyl group having 2 to 10 carbon atoms, a substituted or unsubstituted alkynyl group having 2 to 10 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 10 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 10 carbon atoms, or a substituted or unsubstituted phenoxy group; and q^{34} to q^{42} individually represent an integer of 0 or 1,

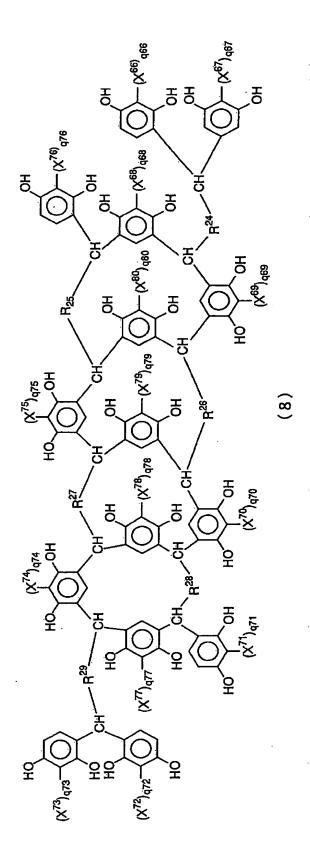
[Formula 6]

wherein R^{16} to R^{19} represent a substituted or unsubstituted alkylene group having 1 to 8 carbon atoms; X^{43} to X^{54} individually represent a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted alkenyl group having 2 to 10 carbon atoms, a substituted or unsubstituted alkynyl group having 2 to 10 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 10 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 10 carbon atoms, or a substituted or unsubstituted phenoxy group; and q^{43} to q^{54} individually represent an integer of 0 or 1,

Formula 7

wherein R^{20} to R^{23} represent a substituted or unsubstituted alkylene group having 1 to 8 carbon atoms; X^{55} to X^{65} individually represent a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted alkenyl group having 2 to 10 carbon atoms, a substituted or unsubstituted alkynyl group having 2 to 10 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 10 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 10 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 10 carbon atoms, or a substituted or unsubstituted phenoxy group; and q^{55} to q^{65} individually represent an integer of 0 or 1,

[Formula 8]



wherein R^{24} to R^{29} represent a substituted or unsubstituted alkylene group having 1 to 8 carbon atoms;; X^{66} to X^{80} individually represent a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted alkenyl group having 2 to 10 carbon atoms, a substituted or unsubstituted alkynyl group having 2 to 10 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 10 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 10 carbon atoms, or a substituted or unsubstituted phenoxy group; and q^{66} to q^{80} individually represent an integer of 0 or 1.

Claim 13 (Original): The intermediate of a calixarene compound according to claim 12, wherein X^{13} to X^{80} in the formulas (2) to (8) are methyl groups.

Claim 14 (Original): The intermediate of a calixarene compound according to claim 12, wherein q^{13} to q^{80} in the formulas (2) to (8) are 0.

Claim 15 (Currently Amended): The intermediate of a calixarene compound according to any one of claims claim 12 to 14, wherein R⁷ to R²⁹ in the formulas (2) to (8) are individually an alkylene group having 3, 5, 7, or 8 carbon atoms.

Claim 16 (Currently Amended): A method for manufacturing a calixarene compound comprising condensing at least one compound shown by the formula (9) and at least one compound shown by the formula (10):

[Formula 9]

$$(X_{81})^{d81} \longrightarrow (3)$$

wherein X⁸¹ represents a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted alkenyl group having 2 to 10 carbon atoms, a substituted or unsubstituted alkynyl group having 2 to 10 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 10 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 10 carbon atoms, or a substituted or unsubstituted phenoxy group; and q⁸¹ is an integer of 0 or 1,

[Formula 10]

$$OHC - R^{30} - CHO \qquad (10)$$

wherein R³⁰ represents a substituted or unsubstituted alkylene group having 1 to 8 carbon atoms.

Claim 17 (Original): The method according to claim 16, wherein X^{81} in the formula (9) is a methyl group.

Claim 18 (Original): The method according to claim 16, wherein q⁸¹ in the formula (9) is 0.

Claim 19 (Currently Amended): The method according to any one of claims claim 16 to 18, wherein R³⁰ in the formula (10) is an alkylene group having 3, 5, 7, or 8 carbon atoms.

Claim 20 (Currently Amended): A composition comprising a calixarene compound of the formula (1) claim 1 and a solvent which ean dissolves the calixarene compound of the formula (1):

[Formula 11]

$$Z^{17}O \xrightarrow{(X^{6})_{q9}}OZ^{18} \xrightarrow{(X^{3})_{q3}} Z^{19}O \xrightarrow{(X^{10})_{q10}}OZ^{20}$$

$$Z^{16}O \xrightarrow{(X^{8})_{q8}}CH \xrightarrow{(X^{11})_{q11}}CH \xrightarrow{(X^{11})_{q11}}CH \xrightarrow{(X^{11})_{q11}}CH \xrightarrow{(X^{11})_{q12}}CH \xrightarrow{(X^{12})_{q12}}CH \xrightarrow{(X^{12})_{q12}}CH \xrightarrow{(X^{12})_{q12}}CH \xrightarrow{(X^{12})_{q12}}CH \xrightarrow{(X^{12})_{q12}}CH \xrightarrow{(X^{12})_{q12}}CH \xrightarrow{(X^{10})_{q10}}CH \xrightarrow{(X^{10})_{q10}}CH \xrightarrow{(X^{11})_{q11}}CH \xrightarrow{(X^{11})_{q11}}CH \xrightarrow{(X^{11})_{q11}}CH \xrightarrow{(X^{11})_{q11}}CH \xrightarrow{(X^{11})_{q12}}CH \xrightarrow{(X^{11})_{q12}$$

wherein R^1 to R^6 individually represent a substituted or unsubstituted alkylene group having 1-8 carbon atoms; X^1 to X^{12} individually represent a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted alkenyl group having 2 to 10 carbon atoms, a substituted or unsubstituted alkynyl group having 2 to 10 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 10 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 10 carbon atoms, or a substituted or unsubstituted phenoxy group; Z^1 to Z^{24} individually represent a hydrogen atom, a group having a

polymerizable functional group, a group having an alkali-soluble group, or a substituted alkyl group having an alkyl chain with a 1 to 8 carbon atom content, or two adjacent Zs in combination represent a substituted or unsubstituted alkylene group having 1 to 8 carbon atoms; q^1 to q^{12} individually represent an integer of 0 or 1.

Claim 21 (Original): The composition according to claim 20, wherein the calixarene compound has a polymerizable functional group for at least one of the Z^1 to Z^{24} groups in the formula (1) and the composition further comprises a polymerization initiator.

Claim 22 (Original): The composition according to claim 20, wherein the calixarene compound has an alkali-soluble group for at least one of the Z^1 to Z^{24} groups in the formula (1).